

# Service Manual

FM-AM 5-BAND  
PORTABLE RADIO

Radio  
**RF-1150LB/LBE**

(For England)



## ■ SPECIFICATIONS

Frequency Range: FM 87.5~108 MHz  
LW 145~355 kHz (2060~845m)  
MW 520~1610 kHz (577~186m)  
SW<sub>1</sub> 3.9~12 MHz (76.9~25m)  
SW<sub>2</sub> 12~30 MHz (25~10m)

Intermediate Frequency: FM 10.7 MHz  
AM (MW, LW & SW) 455 kHz  
470 kHz (For England)

Sensitivity: FM 2 $\mu$ V for 50mW Output  
LW 50 $\mu$ V/m for 50mW Output  
MW 10 $\mu$ V/m for 50mW Output  
SW<sub>1</sub> 2 $\mu$ V for 50mW Output  
SW<sub>2</sub> 3 $\mu$ V for 50mW Output

Power Output: 3.5W Maximum  
Power Source: AC 110~125/220~240V 50/60 Hz  
AC 240V 50 Hz (For England) or

Power Consumption: 6V (Four "D" Size Flashlight Batteries)  
(National UM-1 or equivalent)  
8W (AC Only)  
16cm(6 $\frac{1}{2}$ ") PM Dynamic Speaker  
Dimensions: 246(Wide) x 237(High) x 100(Deep) mm  
(9 $\frac{11}{16}$ " x 9 $\frac{11}{32}$ " x 3 $\frac{15}{16}$ ")  
Weight: 2.1kg (4 lb. 10 oz.) without batteries  
Speaker ..... 8 $\Omega$   
Earphone Jack ..... 8 $\Omega$   
FM EXT. ANT ..... 75 $\Omega$   
DIN Jack  
Phono ..... 500k $\Omega$   
Rec Out ..... 80k $\Omega$

Specifications are subject to change without notice for further improvement.



**National Panasonic**

Matsushita Electric Trading Co., Ltd.  
P.O. Box 288, Central Osaka, Japan

## ■ TO REMOVE CABINET COVER

1. Remove the seven (7) control knobs (VOLUME, BASS, TREBLE, BAND, BFO, MUTING and FM AFC/MW SENS). (To remove those controls, wind a cord around the control and pull it outward.)
2. Remove the battery compartment cover.
3. Remove the four (4) cabinet cover screws (nos. 1~4), as shown in fig. 1.
4. Raise the gyro antenna.
5. Remove both the front and the rear cabinet covers.
6. Remove the sockets for lead wiring to the front and rear cabinet covers.
7. To reassemble, reverse the above procedure.

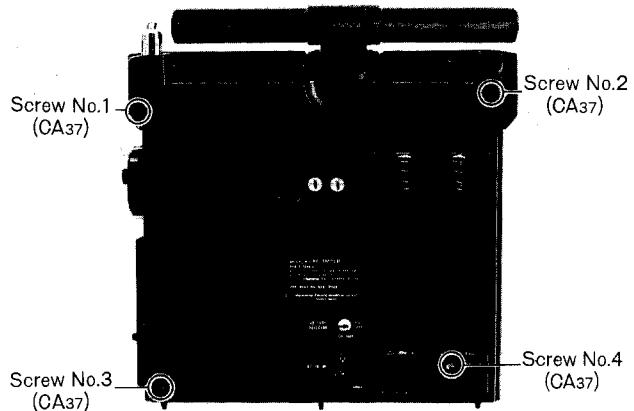


Fig. 1

## ■ TO REMOVE DIAL DRIVE ASSEMBLY

1. Remove the front cabinet cover. (Refer to cabinet cover removal instructions.)
2. Remove the tuning knob.
3. Remove the two (2) dial drive assembly screws (nos. 1 & 3), as shown in fig. 2.
4. Remove the indicator, as shown in fig. 2.
5. Remove the dial drive assembly nut, as shown in fig. 2.
6. Remove the muting switch bracket screws, no. 2, as shown in fig. 2.
7. Remove the dial drive assembly.
8. To reassemble, reverse the above procedure and note the following:
  1. Turn the tuning shaft to fully counter-clockwise.
  2. Turn the variable capacitor shaft to fully counter clockwise.
  3. Place the dial drive assembly into the chassis, and insert the muting switch bracket, as illustrated in fig. 2.
  4. Set the band selector switch to the SW1 position.
  5. Insert the indicator by aligning it with the boss, as shown in fig. 2.

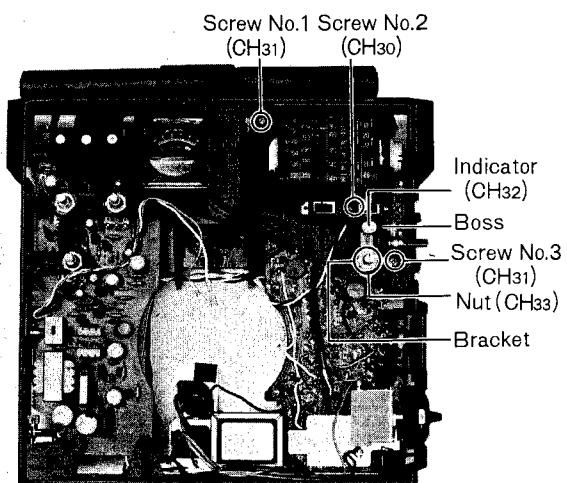


Fig. 2

## ■ DIAL SCALE INSTALLATION GUIDE

1. Insert the gear (the gear not attached to the shaft) and the spring into roller no. 1, as shown in fig. 3.
2. Fully wrap the dial scale around roller no. 1, as shown in fig. 3.
3. Insert the dial scale into rib of roller no. 2, as shown in fig. 3.
4. Loosen the dial drum screw, as shown in fig. 3.
5. Using a screw-driver, as shown in fig. 3, slightly move the gear of roller no. 1 so that the gear disengages from the center gear, turn three times in the direction of the arrow (being sure to secure roller no. 1 so as to prevent it from also turning), and then engage the gear with the center gear once again.
6. Set the start point of the dial scale with the rib, as shown in fig. 4.
7. Turn the tuning shaft to fully counter-clockwise.
8. Tighten the dial drum screws, as shown in fig. 3.

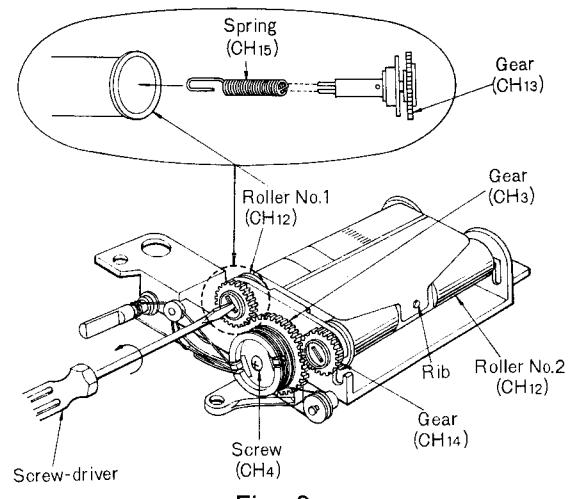


Fig. 3

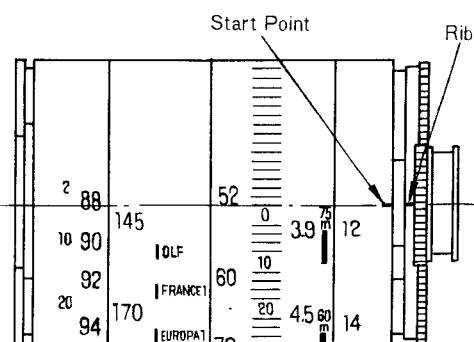


Fig. 4

## ■ DIAL CORD INSTALLATION GUIDE

1. Remove the dial drive assembly from the chassis. (Refer to dial drive assembly removal instructions.)
2. Dial cord length is 47 1/4".
3. Loosen the dial drum screw, as shown in fig. 3.
4. Set each dial drum at the position, as shown in fig. 5.
5. Arrows (1~12) indicate correct order and direction of dial cord installation, as shown in fig. 5.
6. Cement dial cord ends.
7. Turn the tuning shaft to fully counter-clockwise.
8. Set the start point of the dial scale with the rib, as shown in fig. 4.
9. Tighten the dial drum screw, as shown in fig. 3.

## ■ TO REMOVE GYRO ANTENNA

1. Remove gyro antenna cover in the direction of arrow, as shown in fig. 6.
2. Unsolder lead wires to gyro antenna, as shown in fig. 7.
3. To reassemble, reverse the above procedure.

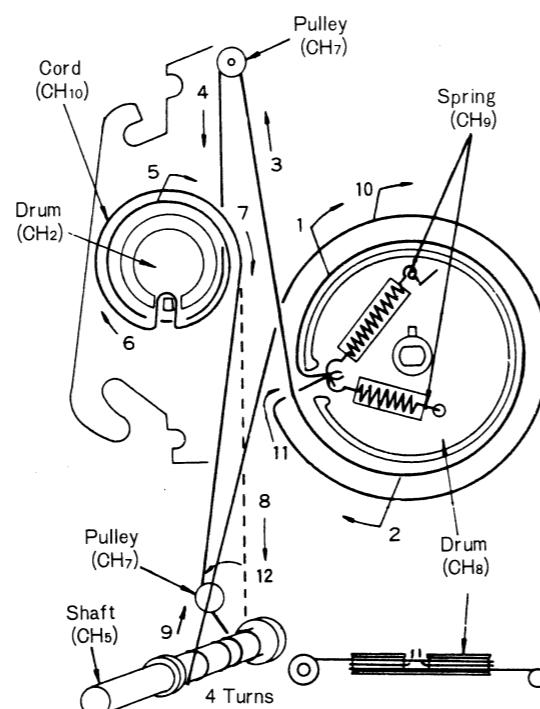


Fig. 5

## ■ TO REMOVE GYRO ANTENNA CASE

1. Remove gyro antenna case U ring, as shown in fig. 8.
2. Remove the gyro antenna. (Refer to gyro antenna removal instructions.)
3. Remove the gyro antenna case in the direction of arrow, as shown in fig. 8.
4. To remove gyro antenna case completely, unsolder (on the side of the PC board) lead wires to gyro antenna, as shown in fig. 7.
5. To reassemble, reverse the above procedure.

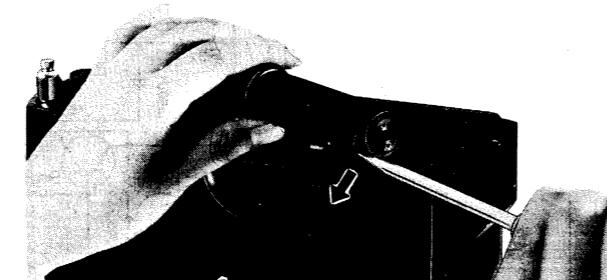


Fig. 6

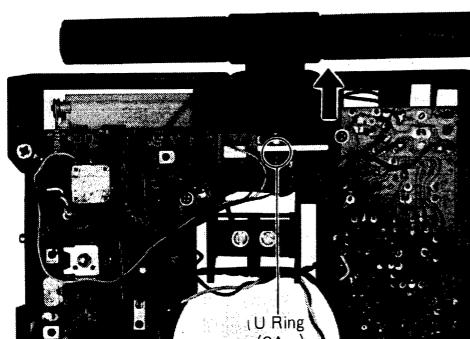


Fig. 8

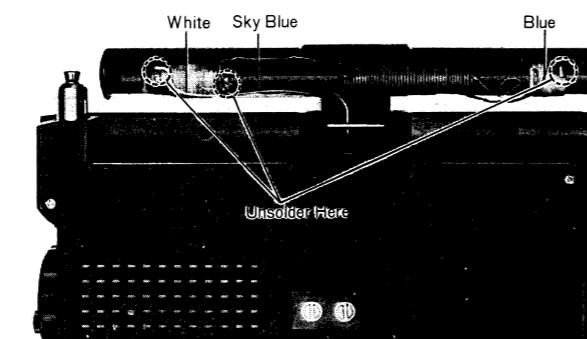


Fig. 7

## ■ ALIGNMENT INSTRUCTIONS

### READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

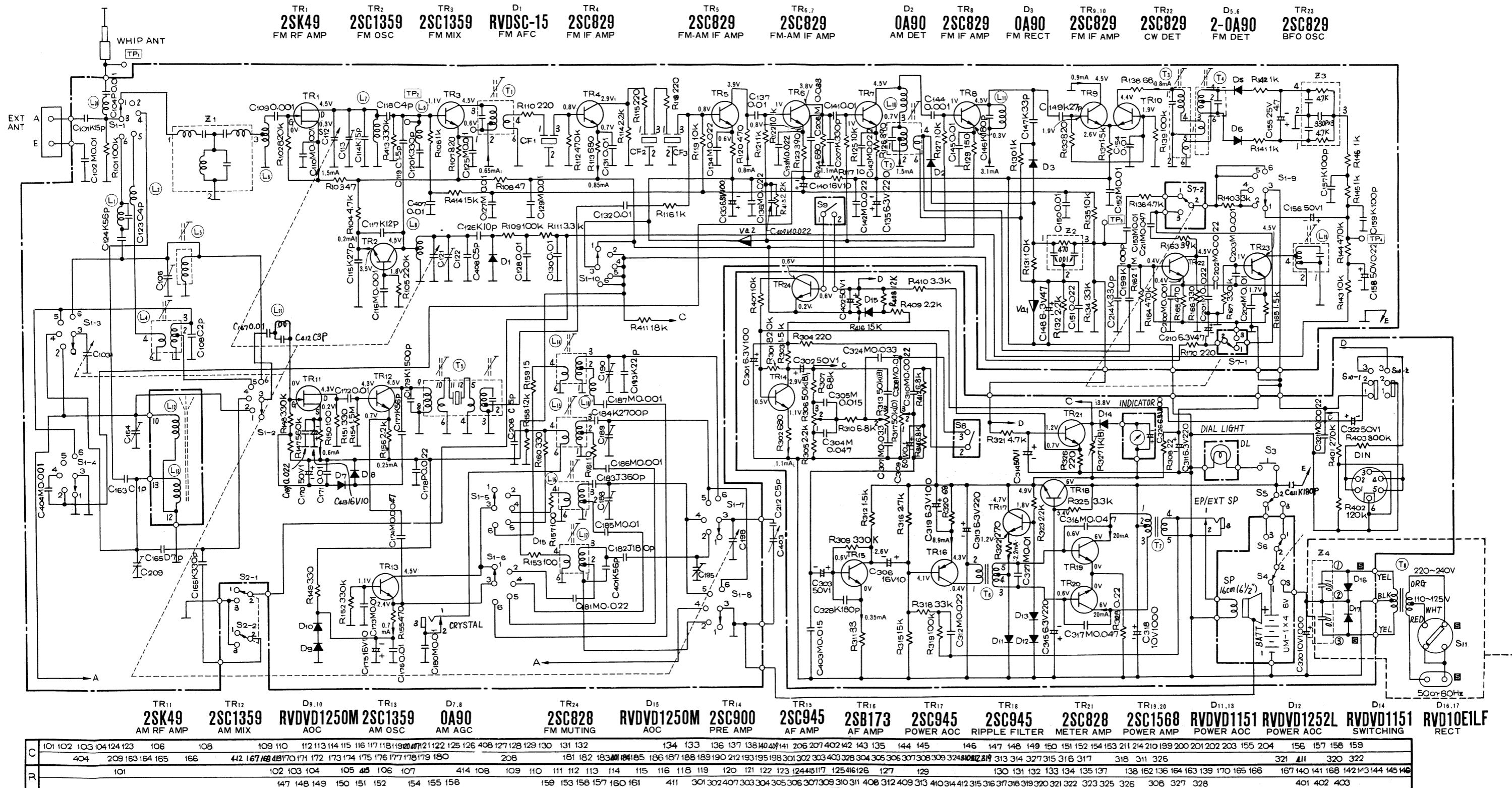
#### Notes:

1. Set volume control to maximum.
2. Set bass & treble controls to maximum.
3. Set band switch to MW, LW, SW<sub>1</sub>, SW<sub>2</sub> or FM.
4. Set FM AFC/MW SENS switch to OFF.
5. Set loudness switch to OFF.
6. Set BFO switch to OFF.
7. Set power source voltage to 6 volts DC.
8. Set FM muting switch to OFF.
9. Set fine tuning to center.

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING [DISTANCE]	INDICATOR (VTVM or SCOPE)	ADJUSTMENT	REMARKS
CONNECTIONS					
FREQUENCY					
<b>LW ALIGNMENT</b>					
(1)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 470 kHz (England Only) 30% Mod. with 400 Hz	Point of non-interference. (on/about 600 kHz)	Output meter across voice coil.	T <sub>5</sub> (1st IFT) T <sub>2</sub> (2nd IFT)
(2)	"	145 kHz	[Fig. 14]	"	L <sub>17</sub> (OSC Coil) (* 1)L <sub>12</sub> (ANT Coil)
(3)	"	350 kHz	[Fig. 15]	"	C <sub>195</sub> (OSC Trimmer) C <sub>164</sub> (ANT Trimmer)
<b>MW ALIGNMENT</b>					
(4)	"	550 kHz	[Fig. 16]	"	L <sub>16</sub> (OSC Coil) (* 1)L <sub>13</sub> (ANT Coil)
(5)	"	1500 kHz	[Fig. 17]	"	C <sub>188</sub> (OSC Trimmer) C <sub>209</sub> (ANT Trimmer)
(* 1) Cement antenna bobbin with wax after completing alignment.					
<b>SW<sub>1</sub> ALIGNMENT</b>					
(6)	Connect to test point <b>TP<sub>1</sub></b> through 10 PF capacitor. Common to earth.	3.9 MHz	3.9 MHz [Fig. 18]	"	L <sub>15</sub> (OSC Coil) L <sub>4</sub> (ANT Coil)
(7)	"	12 MHz	12 MHz [Fig. 19]	"	C <sub>189</sub> (OSC Trimmer)
<b>SW<sub>2</sub> ALIGNMENT</b>					
(8)	Connect to test point <b>TP<sub>1</sub></b> through 10 PF capacitor. Common to earth.	12 MHz	12 MHz [Fig. 20]	"	L <sub>14</sub> (OSC Coil) L <sub>5</sub> (ANT Coil)
(9)	"	28 MHz	28 MHz [Fig. 21]	"	C <sub>190</sub> (OSC Trimmer) C <sub>106</sub> (ANT Trimmer)
<b>FM-IF ALIGNMENT</b>					
(10)	High side thru. 0.001μF to point <b>TP<sub>2</sub></b> , Common to earth.	10.7 MHz (400 kHz SWP.)	Point of non-interference. (on/about 90 MHz).	Connect vert. amp. of scope to point <b>TP<sub>4</sub></b> , Common to earth.	T <sub>1</sub> (FM 1st IFT) T <sub>3</sub> (FM 2nd IFT) (Primary)
(11)	"	"	"	"	T <sub>4</sub> (FM 2nd IFT) (Secondary)
<b>FM-RF ALIGNMENT</b>					
(12)	Connect to point <b>TP<sub>1</sub></b> through FM dummy antenna. Common to earth. (Refer to fig. 13).	87.2 MHz	Tuning gang fully closed.	Output meter across voice coil.	L <sub>8</sub> (FM OSC Coil) (* 2) Adjust for maximum output.
(13)	"	90 MHz	Tune to signal.	"	L <sub>7</sub> (FM DET Coil) (* 2) Adjust for maximum output.
(14)	"	106 MHz	106 MHz [Fig. 22]	"	C <sub>122</sub> (FM OSC Trimmer) C <sub>113</sub> (FM DET Trimmer) (* 2) Adjust for maximum output. Repeat steps (12)~(14).

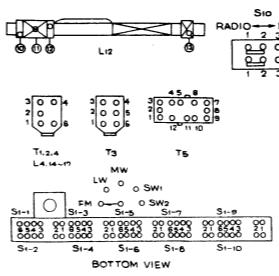
(\* 2) Three output responses will be present; proper tuning is the center frequency.

# Schematic Diagram – Model RF-1150LB/LBE

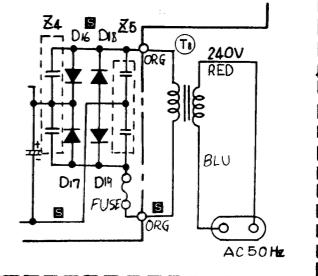


## Notes:

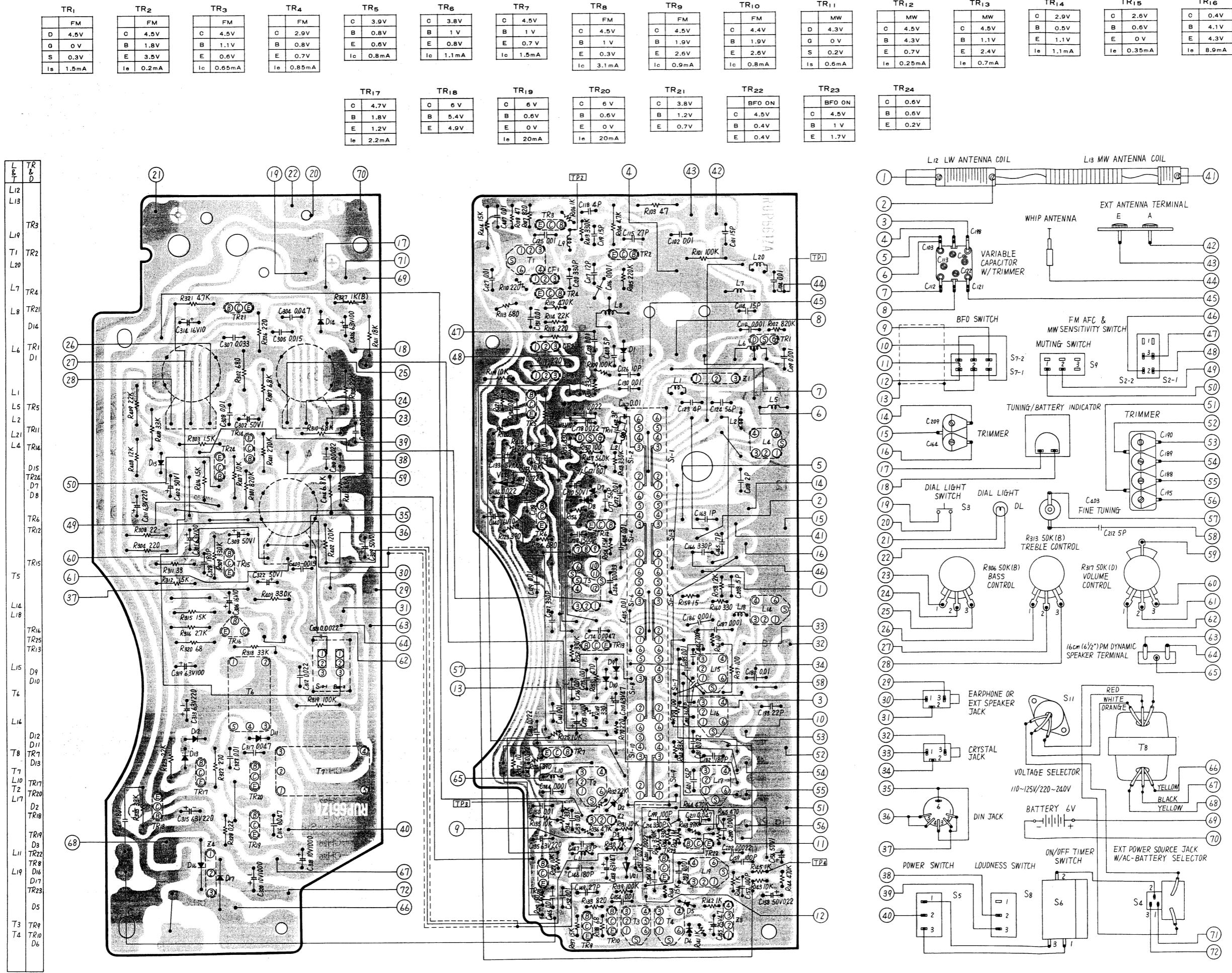
1. S<sub>1-1</sub>~S<sub>1-10</sub>: Band selector in "FM" position.
2. S<sub>2-1</sub>, S<sub>2-2</sub>: FM AFC/MW SENS switch in "ON" "DX" position
3. S<sub>3</sub>: Dial light switch in "OFF" position.
4. S<sub>4</sub>: AC-Battery selector in "Battery" position.
5. S<sub>5</sub>: Power switch in "OFF" position.
6. S<sub>6</sub>: Timer switch in "OFF" position.
7. S<sub>7-1</sub>, S<sub>7-2</sub>: BFO switch in "OFF" position.
8. S<sub>8</sub>: Loudness switch in "OFF" position.
9. S<sub>9</sub>: Muting switch in "OFF" position.
10. S<sub>10-1</sub>, S<sub>10-2</sub>: Radio-phono selector in "Radio" position.
11. S<sub>11</sub>: Voltage selector in "220~240V" position.
12. DC voltage measurements are taken with circuit tester 10k $\Omega$ /V from negative side of battery.  
TR<sub>1, 2, 3, 4, 8, 9, 10</sub> ..... FM position  
TR<sub>11, 12, 13</sub> ..... MW position  
TR<sub>22, 23</sub> ..... BFO ON position
13. Battery current: No signal ..... 45mA  
Maximum output ..... 720mA
14. **S** Indicates that only parts specified by the manufacturer be used for replacement in critical circuits.



RF-1150LBE  
(For England)



# Circuit Board Wiring View-Model RF-1150LB/LBE



1. Set band switch to MW.		2. Set BFO switch to ON.		
SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	FREQUENCY	RADIO DIAL SETTING [DISTANCE]	INDICATOR (VTVM or SCOPE)	ADJUSTMENT
				REMARKS
<b>BFO ALIGNMENT</b>				
Fashion loop of several turns of wire and radiate signal into loop of receiver.	435.5 kHz	Point of non-interference. (on/about 600 kHz)	Audio output from speaker.	L <sub>19</sub> (BFO OSC Coil) Adjust for zero beat.

5)

### BATTERY/TUNING METER ADJUSTMENT

#### 1. RADIO RECEIVER SETTING

- Set band switch to MW.
- Set volume control to minimum.
- Set power source voltage to 6 volts DC.

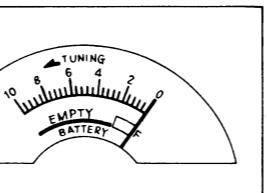
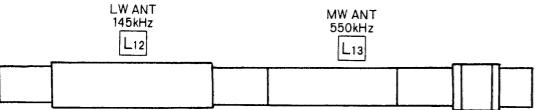


Fig. 9

#### 2. REMARKS

- Adjust R<sub>327</sub> so that the pointer of level meter stays as shown in figure Fig. 9

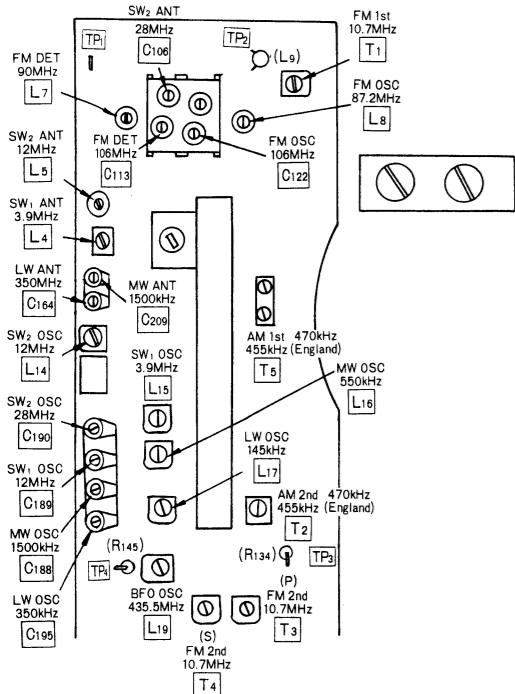


Fig. 10 Alignment Points

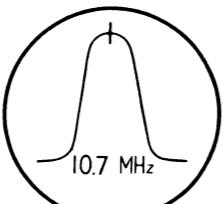


Fig. 11

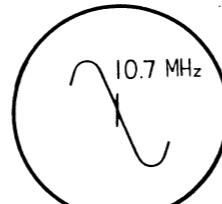


Fig. 12

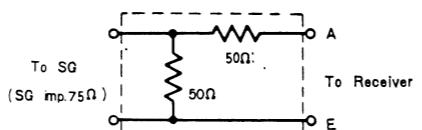


Fig. 13 FM Dummy Antenna

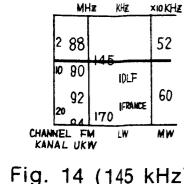


Fig. 14 (145 kHz)

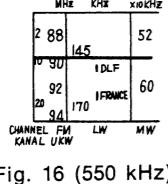


Fig. 16 (550 kHz)

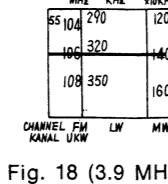


Fig. 18 (3.9 MHz)

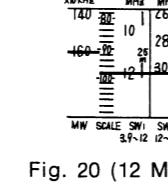


Fig. 20 (12 MHz)

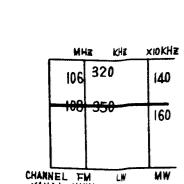


Fig. 15 (350 kHz)

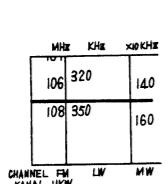


Fig. 17 (1500 kHz)

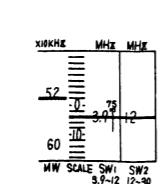


Fig. 19 (12 MHz)

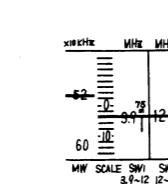


Fig. 21 (28 MHz)

### CABINET PARTS LOCATIONS

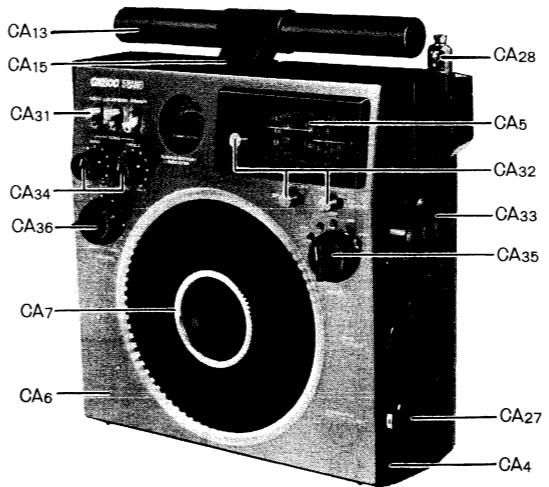


Fig. 23

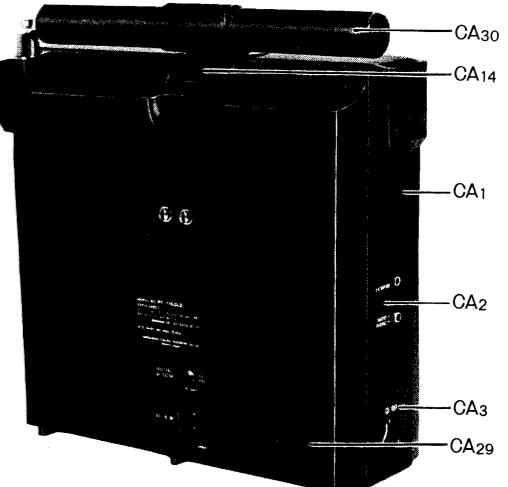


Fig. 24

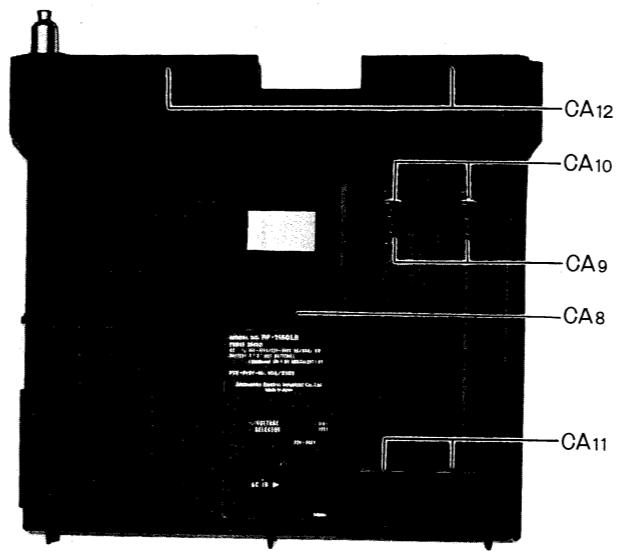


Fig. 25

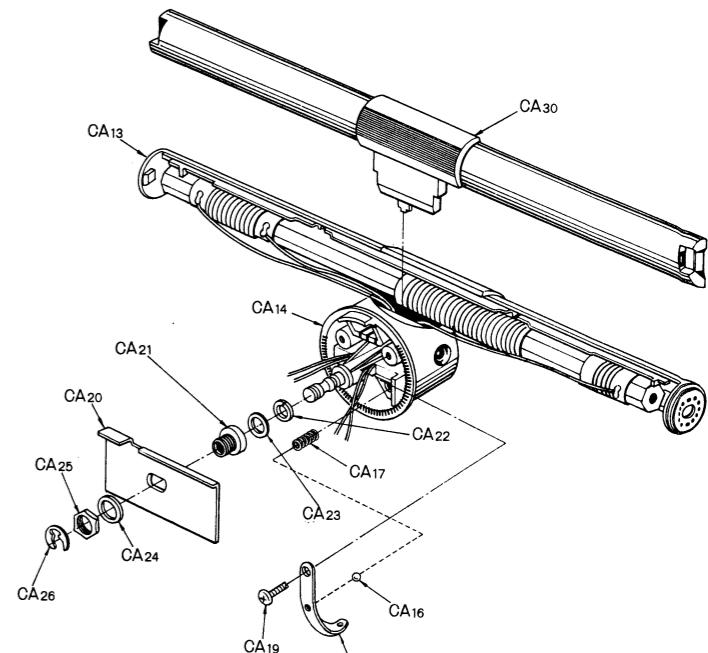


Fig. 26

### CHASSIS PARTS LOCATIONS

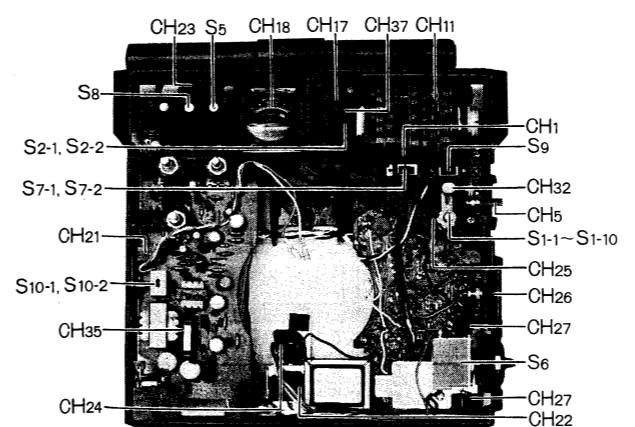


Fig. 27

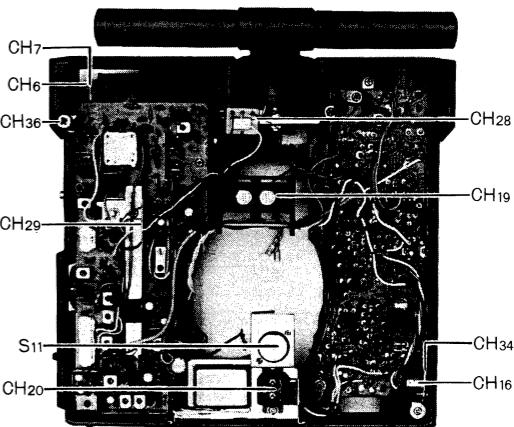


Fig. 28

## ■ PACKING MATERIALS

### ■REPLACEMENT PARTS LIST ..... Model RF-1150LB/LBE

NOTES : 1. Part numbers are indicated on most mechanical parts.

Please use this part number for parts orders.

2. X-Z rank: X rank parts will cover 80% of repair needs.

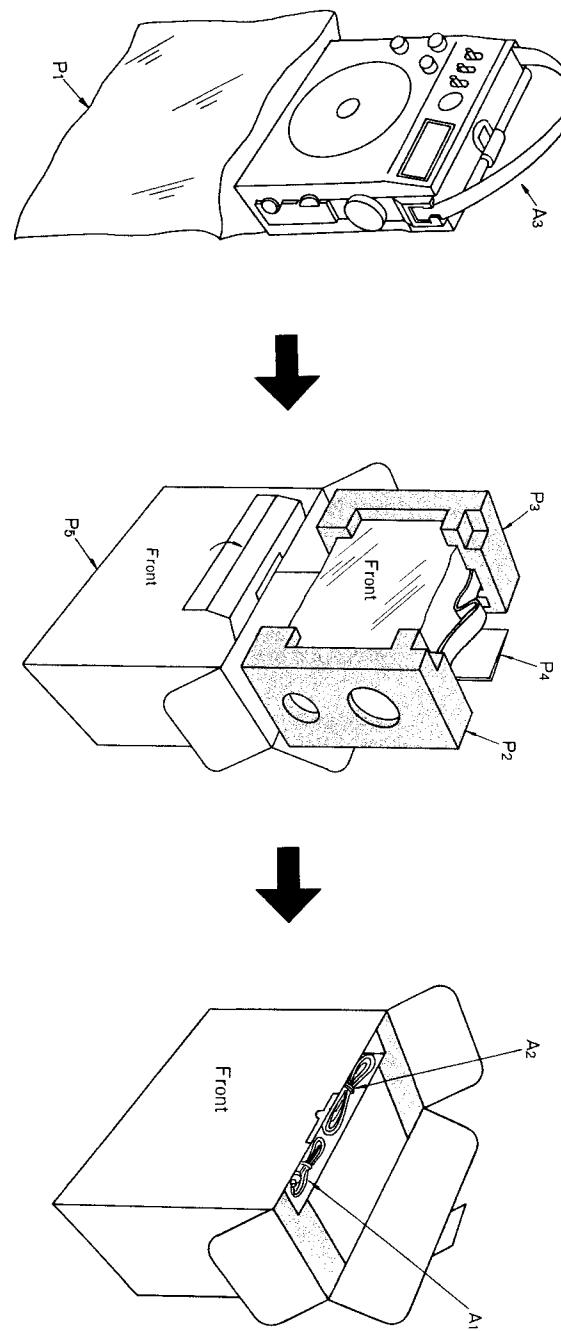
X+Y rank parts will cover 95% of repair needs.

Z rank parts are less necessary.

3. ~~SAFETY~~ Indicates that only parts specified by the manufacturer be used for replacement in critical circuits.

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
<b>TRANSISTORS AND DIODES</b>				
TR1,11	2SK49	FM RF Amplifier, AM RF Amplifier	2	X
TR2,3,12,13	2SC1359	FM Oscillator, FM Mixer, AM Mixer, AM Oscillator	4	X
TR4,5,6,7,8,9,10 22,23	2SC829	FM-AM IF Amplifier, CW Detector, BFO Oscillator	9	X
TR14	2SC900	Pre-Amplifier	1	X
TR15,17,18	2SC945	AF Amplifier, Power Operation Compensator, Ripple Filter	3	X
TR16	2SB173	AF Amplifier	1	X
TR19,20	2SC1568	Power Amplifier	2	X
TR21,24	2SC828	Meter Amplifier, FM Muting	2	X
D1	RVDSC-15	FM AFC	1	X
D2,3,7,8	0A90	AM Detector, FM Rectifier, AM AGC	4	X
D5,6	2-0A90	FM Detector	3	X
D9,10,15	RVDVD1250M	Operation Compensator	3	X
D11,13,14	RVDVD1151	Power Operation Compensator, Switching	3	X
D12	RVDVD1252L	Power Operation Compensator	1	X
D16,17	RVD10E1LF	Rectifier	2	<del>Safety</del> X
D18,19	RVD10E1LF	Rectifier(For England)	2	<del>Safety</del> X
<b>VARIATITES</b>				
Va1,2	EYV320D1R2J2	Operation Compensator	2	X
<b>CERAMIC FILTERS, COILS AND TRANSFORMERS</b>				
CF1,2,3	RVFCF10S12CR	Ceramic Filter	3	X
L1	RLQY75S5-0	Choke Coil	1	YY
L2	RLQY2555-0	Choke Coil	1	Y
L4	RLA3M15-K	SW1 Antenna Coil	1	X
L5	RLA3N13-0	SW2 Antenna Coil	1	X
L6	RLA4Y6-0	FM Antenna Coil	1	X
L7	RLD4N30	FM Detector Coil	1	X
L8	RL04N22-0	FM Oscillator Coil	1	X
L9,10	RLQZ68S1-Y	Choke Coil	2	YY
L11	RLQY15G5-0	Choke Coil	1	Y
L12,13	RLF6X4-0	LW & MW Antenna Coil	1	X
L14	RL03M24-M	SW2 Oscillator Coil	1	X
L15	RL03M22-M	SW1 Oscillator Coil	1	X
L16	RL02M11	MW Oscillator Coil	1	X
L17	RL01M1	LW Oscillator Coil	1	X

Fig. 29



Ref. No.	Part No.	Part Name & Description	Per Set	Remarks	
				○	×
L18,20	RLQY15S5-0	Choke Coil	2	○	Y
L19	RL09M2-M	BFO Oscillator Coil	1	○	X
L21	RLQY75S2-0	Choke Coil	1	○	Y
T1	RLI4M301	FM 1st IF Transformer	1	○	X
T2	RLI2M402	AM 2nd IF Transformer	1	○	X
T3	RLI4M501	FM 2nd IF Transformer, Primary	1	○	X
T4	RLI4M502	FM 2nd IF Transformer, Secondary	1	○	X
T5	RLI7W112-T	AM 1st IF Transformer	1	○	X
T5	RLI7W113-T	AM 1st IF Transformer, (For England)	1	○	X
T6	RLT3F30-V	Input Transformer, P=700Ω:S=1KΩ	1	○	X
T7	RLT2H32-V	Output Transformer, P=20Ω:S=8Ω	1	○	X
T8	RLT5J182-W	Power Transformer	1	○	SAFETY X
T8	RLT5J183-W	Power Transformer(For England)	1	○	SAFETY X

**VARIABLE RESISTORS**

R306,313	RVV54B36-A	50KΩ (B), Bass & Treble Control	2	○	×
R317	RVV54D45-A	50KΩ (D), Volume Control	1	○	×
R327	EVLTOAA00B13	1KΩ (B), Meter Control	1	○	×

**VARIABLE CAPACITORS**

C164,209	RCV2T-16M	Trimmer	1	○	×
C188,189,190, 195	RCV4T-16M	Trimmer	1	○	×
C103,112,121, 198	PVC22K20TM	Variable Capacitor, W/Trimmer (C106,113,122)	1	○	×
C403	RCVFT1-10-2	Variable Capacitor, Fine Tuning	1	○	Y

**COMPONENT COMBINATIONS**

Z1	RXABPF10801H	Coils & Capacitors	1	○	Y
Z2	EXAF203Z471R	0.01μF×2, 470Ω	1	○	Y
Z3	EXA5DL040C	330PF×3, 4.7KΩ×2	1	○	Y
Z4	EXNF2SL04C	0.01μF×2	1	○	SAFETY Y
Z5	EXNF2SL040	0.01μF×2(For England)	1	○	SAFETY Y

**SPEAKER**

SP	EAS16P91SM	16cm(6½") PM Dynamic Speaker, Imp.8Ω	1	○	×
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**SWITCHES**

S1-1~S1-10	RSR98YK-P	Band Selector	1	○	×
S2-1,S2-2,S7-1	RSS140Y-G	FM AFC/MW SENS,BFO & Muting Switch	3	○	×
S7-2,S9					
S5	RST65Z-F	Power Switch	1	○	×
S6	RSE50Z-T	Timer Switch	1	○	×
S8	RST65Y-F	Loudness Switch	1	○	×
S10-1,S10-2	RSS61X-H	Radio-Phono Selector	1	○	SAFETY X
S11	RSR12A	Voltage Selector	1	○	SAFETY X

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks	
				○	×
<b>RESISTORS</b>					
R163	ERD18VJ393	39KΩ, ½Watt, ±5%, Carbon	1		Z
R154	ERD18VJ155	1.5MΩ, ½Watt, ±5%, Carbon	1		Z
R161,117	ERD18VJ100	10Ω, ½Watt, ±5%, Carbon	2		Z
R159	ERD18VJ150	15Ω, ½Watt, ±5%, Carbon	1		Z
R108	ERD18VJ470	47Ω, ½Watt, ±5%, Carbon	1		Z
R138	ERD18VJ680	68Ω, ½Watt, ±5%, Carbon	1		Z
R150	ERD18VJ101	100Ω, ½Watt, ±5%, Carbon	1		Z
R129	ERD18VJ151	150Ω, ½Watt, ±5%, Carbon	1		Z
R110,115,170	ERD18VJ221	220Ω, ½Watt, ±5%, Carbon	3		Z
R149,151,160, 166	ERD18VJ331	330Ω, ½Watt, ±5%, Carbon	4		Z
R120,165	ERD18VJ471	470Ω, ½Watt, ±5%, Carbon	2		Z
R113,124	ERD18VJ681	680Ω, ½Watt, ±5%, Carbon	2		Z
R106,121,130, 141,142	ERD18VJ102	1KΩ, ½Watt, ±5%, Carbon	5		Z
R137,168	ERD18VJ152	1.5KΩ, ½Watt, ±5%, Carbon	2		Z
R114,132,156, 415	ERD18VJ222	2.2KΩ, ½Watt, ±5%, Carbon	4		Z
R111	ERD18VJ332	3.3KΩ, ½Watt, ±5%, Carbon	1		Z
R136	ERD18VJ472	4.7KΩ, ½Watt, ±5%, Carbon	1		Z
R119,122,125, 127,131,135, 143	ERD18VJ103	10KΩ, ½Watt, ±5%, Carbon	7		Z
R140	ERD18VJ333	33KΩ, ½Watt, ±5%, Carbon	1		Z
R109,139	ERD18VJ104	100KΩ, ½Watt, ±5%, Carbon	2		Z
R105	ERD18VJ224	220KΩ, ½Watt, ±5%, Carbon	1		Z
R148,152,167, 413	ERD18VJ334	330KΩ, ½Watt, ±5%, Carbon	4		Z
R112,144	ERD18VJ474	470KΩ, ½Watt, ±5%, Carbon	2		Z
R102	ERD18VJ824	820KΩ, ½Watt, ±5%, Carbon	1		Z
R147	ERD18VJ564	560KΩ, ½Watt, ±5%, Carbon	1		Z
R162	ERD18VJ105	1MΩ, ½Watt, ±5%, Carbon	1		Z
R158	ERD18VJ122	1.2KΩ, ½Watt, ±5%, Carbon	1		Z
R107,133	ERD18VJ821	820Ω, ½Watt, ±5%, Carbon	2		Z
R123,126	ERD18VJ391	390Ω, ½Watt, ±5%, Carbon	2		Z
R402	ERD18SJ124	120KΩ, ½Watt, ±5%, Carbon	1		Z
R164	ERD18TJ474	470KΩ, ½Watt, ±5%, Carbon	1		Z
R153,157	ERD18TJ101	100Ω, ½Watt, ±5%, Carbon	2		Z
R311	ERD18SJ330	33Ω, ½Watt, ±5%, Carbon	1		Z
R103	ERD18SJ470	47Ω, ½Watt, ±5%, Carbon	1		Z
R320	ERD18SJ680	68Ω, ½Watt, ±5%, Carbon	1		Z
R118,304,326	ERD18SJ221	220Ω, ½Watt, ±5%, Carbon	3		Z
R155	ERD18SJ471	470Ω, ½Watt, ±5%, Carbon	1		Z
R302	ERD18SJ681	680Ω, ½Watt, ±5%, Carbon	1		Z
R116	ERD18SJ102	1KΩ, ½Watt, ±5%, Carbon	1		Z
R303,312	ERD18SJ152	1.5KΩ, ½Watt, ±5%, Carbon	2		Z
R305,323,409	ERD18SJ222	2.2KΩ, ½Watt, ±5%, Carbon	3		Z
R325,410	ERD18SJ332	3.3KΩ, ½Watt, ±5%, Carbon	2		Z
R104,321	ERD18SJ472	4.7KΩ, ½Watt, ±5%, Carbon	2		Z
R307,310,314, 412	ERD18SJ682	6.8KΩ, ½Watt, ±5%, Carbon	4		Z
R407	ERD18SJ103	10KΩ, ½Watt, ±5%, Carbon	1		Z
R315,414,416	ERD18SJ153	15KΩ, ½Watt, ±5%, Carbon	3		Z
R318	ERD18SJ333	33KΩ, ½Watt, ±5%, Carbon	1		Z

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
R101,319	ERD18SJ104	100KΩ, ½Watt, ±5%, Carbon	2	Z
R309,403	ERD18SJ334	330KΩ, ½Watt, ±5%, Carbon	2	Z
R322	ERD18SJ271	270KΩ, ½Watt, ±5%, Carbon	1	Z
R301	ERD18SJ824	820KΩ, ½Watt, ±5%, Carbon	1	Z
R308	ERD18SJ220	22Ω, ½Watt, ±5%, Carbon	1	Z
R401	ERD18SJ274	270KΩ, ½Watt, ±5%, Carbon	1	Z
R316	ERD18SJ272	2.7KΩ, ½Watt, ±5%, Carbon	1	Z
R408	ERD18SJ123	12KΩ, ½Watt, ±5%, Carbon	1	Z
R411	ERD18SJ183	18KΩ, ½Watt, ±5%, Carbon	1	Z
R328	ERX12ANJR22U	0.22Ω, ½Watt, ±5%, Metal Oxide	1	Z
R134	ERD18TJ333	33KΩ, ½Watt, ±5%, Carbon	1	Z
R145,146	ERD18TJ102	1KΩ, ½Watt, ±5%, Carbon	2	Z

### CAPACITORS

C163	ECCD1H010C	1PF, 50WV, ±0.25PF, Ceramic	1	Z
C108	ECCD1H020C	2PF, 50WV, ±0.25PF, Ceramic	1	Z
C118,123	ECCD1H040C	4PF, 50WV, ±0.25PF, Ceramic	2	Z
C212	ECCD1H050CC	5PF, 50WV, ±0.25PF, Ceramic	1	Z
C165	ECCD1H070DC	7PF, 50WV, ±0.5PF, Ceramic	1	Z
C117	ECCD1H120KC	12PF, 50WV, ±10%, Ceramic	1	Z
C146,328,411	ECCD1H181K	180PF, 50WV, ±10%, Ceramic	3	Z
C124,177,401	ECCD1H560K	56PF, 50WV, ±10%, Ceramic	3	Z
C157,159,199	ECCD1H101K	100PF, 50WV, ±10%, Ceramic	3	Z
C120,166,207, 214	ECCD1H331K	330PF, 50WV, ±10%, Ceramic	4	Z
C408	ECCD1H050CW	5PF, 50WV, ±0.25PF, Ceramic	1	Z
C119	ECCD1H1R5C	1.5PF, 50WV, ±0.25PF, Ceramic	1	Z
C101,114	ECCD1H150KC	15PF, 50WV, ±10%, Ceramic	2	Z
C115,149	ECCD1H270KC	27PF, 50WV, ±10%, Ceramic	2	Z
C147	ECCD1H330KC	33PF, 50WV, ±10%, Ceramic	1	Z
C126	ECCD1H100KC	10PF, 50WV, ±10%, Ceramic	1	Z
C193	ECCD1H220KW	22PF, 50WV, ±10%, Ceramic	1	Z
C144	ECKD1H102PF	0.001μF, 50WV, ±100%, Ceramic	1	Z
C104,128,130, 131,132,137, 141,145,150, 154,167,171, 172,176,407	ECKE1H103PF	0.01μF, 50WV, ±100%, Ceramic	15	Z
C110,116,186, 187,200,203	ECKE1H102MD	0.001μF, 50WV, ±20%, Ceramic	6	Z
C109	ECKE1H102PF	0.001μF, 50WV, ±100%, Ceramic	1	Z
C151,178	ECKE1H223PF	0.022μF, 50WV, ±100%, Ceramic	2	Z
C202,310,321	ECKE1H222MD	0.0022μF, 50WV, ±20%, Ceramic	3	Z
C102,125,127, 129,152,153, 173,180,185, 204,308,327, 404	ECKE1H103MD	0.01μF, 50WV, ±20%, Ceramic	13	Z
C134,136,138, 142,143,169, 181,201,312, 409	ECKE1H223MD	0.022μF, 50WV, ±20%, Ceramic	10	Z

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
C305,403	ECKE1H153MD	0.015μF, 50WV, ±20%, Ceramic	2	Z
C182	ECMS05181J-H	180PF, 50WV, ±5%, Mica	1	Z
C183	ECQS1361JZ	360PF, 125WV, ±5%, Styrol	1	Z
C179	ECQS1152KZ	1500PF, 125WV, ±10%, Styrol	1	Z
C184	ECQS05272KZ	2700PF, 50WV, ±10%, Styrol	1	Z
C211,304,316, 317	ECQG05473MZ	0.047μF, 50WV, ±20%, Polyester	4	Z
C307,324	ECQG05333MZ	0.033μF, 50WV, ±20%, Polyester	2	Z
C158	ECEA50ZR22	0.22μF, 50WV, Electrolytic	1	Y
C309	ECEA50ZR1	0.1μF, 50WV, Electrolytic	1	Y
C148	ECEA6V47E	47μF, 6.3WV, Electrolytic	1	Y
C133,301,319, 326	ECEA6V100E	100μF, 6.3WV, Electrolytic	4	Y
C135,311,313, 315	ECEA6V220E	220μF, 6.3WV, Electrolytic	4	Y
C210	ECEA6V47	47μF, 6.3WV, Electrolytic	1	Y
C318,320	ECEA10V100E	1000μF, 10WV, Electrolytic	2	Y
C140,175,306	ECEA16V10E	10μF, 16WV, Electrolytic	3	Y
C155	ECEA25V4R7E	4.7μF, 25WV, Electrolytic	1	Y
C302,303,314, 322,402	ECEA50V1E	1μF, 50WV, Electrolytic	5	Y
C156,170	ECEA50V1	1μF, 50WV, Electrolytic	2	Y
C412	ECCD1H030C	3PF, 50WV, ±0.25PF, Ceramic	1	Z
C208	ECCD1H050CC	5PF, 50WV, ±0.25PF, Ceramic	1	Z
C413	ECEA16V10	10μF, 16WV, Electrolytic	1	Y
C174	ECKE1H472MD	0.0047μF, 50WV, ±20%, Ceramic	1	Z
C206	ECKE1H332MD	0.0033μF, 50WV, ±20%, Ceramic	1	Z

### CABINET

CA1	→RYMF1150LBX 〔Not Available, Order〕	Cabinet Assembly Cabinet Body Only	1 (1)	○ Z
CA2	RGK646Y	Indicating Plate, RADIO, PHONO Mark	1	○ Z
CA3	RGK658Z	Indicating Plate, Phono & Din Jack	1	○ Z
CA4	→RYF1F1150LBX	Cabinet Front Cover Assembly	1	○ Y
CA5		Front Cover Only	(1)	
CA6	Not Available, Order RYF1F1150LBX	Panel, Dial	(1)	
CA7	→RYF2F1150LBX 〔Not Available, Order〕	Indicating Plate, GX600.5BAND, etc Mark	(1)	
CA8	RGK658Z	Net(Large), Speaker	(1)	
CA9	RGK658Z	Net(Small), Speaker	(1)	
CA10	RJC507Z	Ornament, Speaker	(1)	
CA11	RJT398A	Cabinet Back Cover Assembly	1	○ Y
CA12	RJC205B	Back Cover Only	(1)	
CA13	RHG307A	Spring, Battery ⊕ Side	2	Y
CA14	→RYEF1150M 〔Not Available, Order〕	Connecting Pipe, Spring	2	Z
	RYEF1150M	Terminal, Battery ⊕ Side	2	Y
		Rubber Cushion, Gyro Antenna	2	Z
		Gyro Antenna Case Assembly	1	○ Y
		Case Only	(1)	
		Base, Gyro Antenna Case	(1)	
		Shaft, Gyro Antenna Case	(1)	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks		Ref. No.	Part No.	Part Name & Description	Per Set	Remarks							
				○	Z					○	Z						
CA15	RGK653Z	Indicating Plate	1	○	Z	CH13(Fig.3)	RDG5638Y	Gear, Dial Scale Shaft (Low Frequency Side)	1	○	Z						
CA16	RHE25Z	Steel Ball	1	○	Z	CH14(Fig.3)	RDG5638Z	Gear, Dial Scale, Shaft (High Frequency Side)	1	○	Z						
CA17	RUS204Z	Spring, Steel Ball	1	○	Z	CH15(Fig.3)	RDS5201Z	Spring Gear (RDG5638Z)	1	○	Y						
CA18	RUL336Z	Bracket, Steel Ball	1	○	Z		→RXEF1150N	Gyro Antenna Stopper Assembly	1	○	Z						
CA19	XTN3+8B	Screw, Bracket M'tg	1	○	Z		(Not Available, Order)	Stopper Only	(1)								
CA20	RUL389Z	Bracket, Gyro Antenna Case	1	○	Z	CH16	RJS75Z-H	Bracket, Stopper	(1)								
CA21	RDX310Z	Shaft, Gyro Antenna Case	1	○	Z	CH17	XAMR96T150B	Din Jack, Phono & Tape	1	○	X						
CA22	XWA5B	Washer, Gyro Antenna Case	1	○	Z	CH18	RSM2605B-K	Pilot Lamp, Dial Light, 6V, 0.1A	1	○	X						
CA23	XWE5D	Washer, Gyro Antenna Case	1	○	Z	CH19	RJF1044Y	Meter, Tuning & Battery Indicator	1	○	X						
CA24	XWS8AW	Washer, Gyro Antenna Case	1	○	Z	CH20	RJJ30Z-H	Terminal, EXT. Antenna	1	○	Y						
CA25	XNS8	Nut, Gyro Antenna Case	1	○	Z	CH21	RJJ87Y-C	Jack, EXT. Power Source	1		Safety Y						
CA26	XUE5FP	U Ring, Gyro Antenna Case	1	○	Z	CH22	RJT463Z	Jack, Crystal & Earphone	1	○	X						
CA27	→RYTF1150M	Timer Knob Assembly	1	○	Y	CH23	RJE10Z	Spring, Dial Light Switch	1	○	Z						
	(Not Available, Order)		(1)			CH24	RUV409Z	Cover, EXT. Power Source Jack	1		Safety Z						
	RYTF1150M	Spring, Knob	(1)			CH25	RUV98A	Cover, Power & Loudness Switch	1	○	Z						
CA28	XEART196FBY	Whip Antenna, 6 Steps 1044mm	1	○	X	CH26	RMW19Z	Cover, Voltage Selector	1		Z						
	RMA136Z	Bracket, Whip Antenna	1	○	Z	CH27	RBT75Z	Bracket, Muting Switch	1		Z						
CA29	RKK102Z	Cover, Battery Compartment	1	○	X	CH28	RHG990Z	Knob, Fine Tuning	1		Z						
CA30	RKE140Z	Cover, Gyro Antenna	1	○	Y	CH29	RHR132Z	Rubber Cushion, Timer	2	○	Z						
CA31	RBC105Z	Button, Dial Light Switch	1	○	Z	CH30(Fig.2)	RHR133Z	Holder (Small), Antenna Lead Wires	1	○	Z						
CA32	RBD49Y	Knob, AFC, BFO & Muting Switch	3	○	X		XSN2+4	Holder (Large), Antenna Lead Wires	1	○	Z						
CA33	RBN314Z	Knob, Tuning	1	○	X		XSN2+5	Screw, Muting Switch M'tg	1		Z						
CA34	RBN315Z	Knob, Bass & Treble	2	○	X			Screw, AFC, Muting & BFO Switch	3		Z						
CA35	RBS92ZK	Knob, Band Selector	1	○	X			M'tg			Z						
CA36	RBS98Z	Knob, Volume	1	○	X	CH31(Fig.2)	XSN26+6	Screw, Variable Capacitor M'tg	2		Z						
	XWVR10	Washer, Whip, Antenna	1	○	Z		XTN3+10B	Screw, Dial Scale Assembly M'tg	3		Z						
	RHR750Z	Insulating Plate, Whip Antenna	1	○	Z	CH32	RGX651Z	Indicator, Band Selector	1		Z						
CA37(Fig.1)	XTB3+50BFN	Screw, Cabinet Cover M'tg	4	○	Y	CH33(Fig.2)	XNS8	Nut, Bracket M'tg	1		Z						
	RGT478Y	Name Plate (Small), (For England)	1	○	Z	CH34	RMK91ZS	Bracket, Din Jack	1		Z						
	RGT478Z	Name Plate (For Italy)	1	○	Z		RJR18B	Lead Holder (1 Terminal), P.C. Board	1		Z						
	RGT479Z	Name Plate (Large), (For England)	1	○	Z	CH35	RUV217A	Cover, Radio-Phono Selector	1		Z						
							RMY75Z	Heat Sink, Transistor	1		Safety Y						
							XBA2C08TR0	Fuse, (For England)	1		Safety Y						
							RJF7A	Holder, Fuse, (For England)	2								
							RJT514Z	Terminal, Whip Antenna	1	○	Z						
							RUV364Z	Cover, AFC Switch	1	○	Z						
							RHR797Z	Cushion, Core Antenna	2	○	Z						
<b>CHASSIS</b>																	
CH1	→RYDF1150LBX (Not Available, Order) →RYDF1150LBX	Dial Scale Assembly Base Only	1	○	Y	<b>ACCESSORIES</b>											
CH2(Fig.5)	RDD200Z	Drum (Small), Dial	1	○	Y	A1	XEH1A1	Magnetic Earphone	1		Y						
CH3(Fig.3)	RDG5639Z	Gear, Dial Drum (RDD200Z)	1	○	Y	A2	RJA20Z-K	AC Cord, Power Source	1		Safety Y						
CH4(Fig.3)	XTW3+10E	Screw, Dial Drum M'tg	1	○	Z	A2	RJA43Z-K	AC Cord, Power Source (For England)	1		Safety Y						
	XW03B	Washer, Dial Drum M'tg	1	○	Z	A3	RQC901Z	Belt	1	○	Z						
CH5	RDT1251Z	Shaft, Tuning	1	○	Z	<b>PACKING MATERIALS</b>											
	XNGR6	Nut, Tuning Shaft M'tg	1	○	Z	P1	RPP168Z	Polyethylene Cover	1		Z						
	XWE6D10	Washer, Tuning Shaft M'tg	1	○	Z	P2	→RPN9176Z (Not Available, Order)	Pad Complete	1	○	Z						
	XWA6B	Washer, Tuning Shaft M'tg	1	○	Z	P3	RPN9176Z	Pad, Right Side	(1)								
CH6	XUC4FW	E Ring, Gear (RDG5639Z) M'tg	1	○	Z	P4	RQX5894Z	Pad, Left Side	(1)								
CH7	RDY31A	Shaft, Pulley	2	○	Z	P5	RPG1507Z	Instruction Book	1	○	Y						
CH8(Fig.5)	RDR20-3	Pulley, Dial	2	○	Z			Packing Case	1	○	Z						
CH9(Fig.5)	RDD410Y	Drum (Large), Dial	1	○	Y												
CH10(Fig.5)	RDS4060A	Spring, Drum	2	○	Y												
CH11	RDZ05A	Cord (500m), Dial	1 Roll	○	Y												
CH12(Fig.3)	RKD356W	Scale, Dial	1	○	Y												
	RDF971Z	Roller, Dial Scale	2	○	Z												